



## TREE AND VINE NOTES



FEBRUARY 2002

### SAN JOAQUIN VALLEY DRIED PLUM DAY

Thursday, February 28, 2002

**\*New Location:**

**University of California Cooperative Extension  
Tulare County**

**4437 S. Laspina St. B, Tulare, CA**

**Going south on 99 take the Paige Ave exit and turn left at the stop sign.  
Take another left and go over the overpass to stop sign which is Laspina.  
Turn right and go about one mile.**

#### Free Half-Day Meeting

**8:00 - 8:20 a.m. Registration**

**8:20 - 8:30 a.m.**

**Welcome**

*Moderator: Harry Andris, Fresno County Farm Advisor*

**8:30 - 9:00 a.m.**

**Reducing Costs in Dried Plum Production**

*Maxwell Norton, Merced County Farm Advisor*

**9:00 - 9:30 a.m.**

**New Approaches in Management of Aphids in Dried Plums**

*Dr. Nicholas Mills, Associate Professor, Insect Biology, UC Berkeley*

**9:30 - 10:00 a.m.**

**Brown Rot Research Update and Disease Management**

*Dr. Themis Michailides, Plant Pathologist, Kearney Ag Center*

**10:00 - 10:15 a.m.**

**Break**

**10:15 - 10:45 a.m.**

**Dealing with Pesticide Issues - The California Dried Plum Board**

*Gary Obenauf, Research Coordinator, California Dried Plum Board*

**10:45 - 11:15 a.m.**

**Update on Marketing and the Tree Removal Program**

*Richard Peterson, Executive Director, California Dried Plum Board*

**11:15 a.m.**

**Adjourn**

## **Winegrape Prices Available**

The Preliminary CA Grape Crush Report is now available online at <http://www.nass.usda.gov/ca/> where you can find detailed information about the prices paid growers for grapes during the 2001 season. Go to: Publications > Grape Crush. The information of interest to most is table 10. I always look at tables 5, 6 and 8 also. It is important to note that tables 5 & 10 exclude sales from vineyards that a winery has even a minor ownership in and thus is more representative of sales by independent farmers. Merced county is in pricing district 12. Unless you have a very fast internet connection don't try downloading the whole report.

## **Spring Control of Almond Diseases By Brent Holtz**

Almond trees are susceptible to bloom and foliar diseases when it rains at bloom, and the decision of when to spray and what fungicides to use can be quite difficult. In the San Joaquin Valley we are usually in a low precipitation region and we cannot predict when and how much it is going to rain. We often receive rain during bloom which can result in favorable conditions for several plant pathogenic fungi to cause spring time diseases of almonds. The main diseases in almonds are Brown Rot Blossom Blight, Green Fruit Rot or Jacket Rot, and Shothole. Other less familiar diseases include Scab, Rust, Leaf Blight and Anthracnose. The fungi that cause these diseases are usually always present in almond orchards, sometimes in higher or lower amounts depending on the previous years disease levels and current environmental conditions.

### **Brown Rot and Shot Hole**

Most orchards are treated at least once during bloom for brown rot. The brown rot fungus (*Monilinia laxa*) attacks the tree by invading the anthers and pistils of the flower when it is open. From there the fungus can move into and kill the spur or shoot.

Young fruit are also susceptible in early spring and infection of fruit may extend to and kill spurs and shoots. Although all cultivars of almond are susceptible to brown rot, they vary in their degree of susceptibility; Butte is the most susceptible variety followed by Carmel. Ne Plus Ultra and Mission are only moderately susceptible, while Nonpareil and Peerless are the least susceptible to brown rot. Varieties that are susceptible to Green Rot or Jacket Rot (caused by *Monilinia laxa*, *Botrytis cinerea*, *Sclerotinia sclerotiorum*) are Butte, Ne Plus Ultra, Merced, Carmel, Price or any variety with tight clusters. Nonpareil can be affected by this disease if the right environmental conditions occur. The time of infection for Green Fruit Rot or Jacket Rot is from flower opening to petal fall. Brown Rot Blossom blight is usually controlled by a treatment at pink bud which is sufficient in most years, but a second application at full bloom or early petal fall may be necessary in years favorable to disease (rain). If bloom is strung out and the weather is wet and rainy, no more than ten days should elapse between treatments.

### **Shot Hole**

The Shot Hole fungus (*Wilsonomyces carpophilus*) is notoriously more prevalent in wet years. This fungus requires water for all its activities, so periods of extended rainfall create a situation that favors Shot Hole disease epidemics. The fungus can cause lesions on leaves and fruit, but most of the time it infects the leaves as they emerge from the leaf bud. Leaf infections lead to defoliation, which usually occurs in early spring. Shot hole infection of young fruit, shortly after they emerge from the jacket, can cause the fruit to drop. As fruits enlarge, shot hole infection results in a lesion but the fruit no longer fall. About the first of May, when the embryo of the nut begins to grow, the hull becomes resistant to infection and no further lesions develop. Shot Hole is usually controlled by fungicide applications after bloom.

### **Scab**

Until recently, scab (*Cladosporium carpophilum*) was considered more of a curiosity rather than a crop threatening disease. This has changed! In the last several years more and more orchards have developed scab problems and the disease is often serious. The fungus causes greasy black spots on fruit, leaves, and green shoots. The shoot lesions are the overwintering sites for the fungus and the source of new spores in the spring. No apparent damage is done to the fruit, but the leaves fall. Scab can completely defoliate a tree in a short time. Severe defoliation in early summer was even observed in several orchards in Madera County last year. All cultivars appear susceptible, but Carmel seems especially vulnerable. Scab is controlled by fungicide applications from 2 to 5 weeks after bloom. Earlier treatments are not effective alone, but increase the protection provided by the later treatment. Applications later than 5 weeks after bloom are less effective, especially in the southern part of the San Joaquin Valley.

Not all fungicides are effective against scab, thus it is important to include scab-active materials in an overall treatment program.

## **Rust**

Rust (*Tranzschelia discolor f. sp. dulcis*) can also cause defoliation. Both rust and scab are favored by high humidity and usually are worse in years when late spring rains occur. Orchard culture that produces humid conditions for long periods is ideal for both diseases. Like scab, rust usually appears in late spring or early summer. The fungus attacks leaves but not fruit. On leaves, it produces small, bright yellow dots on the upper leaf surface, and reddish orange pustules on the lower leaf surface. The only material registered that has any efficacy is sulfur. One or two applications of sulfur in late spring can usually control rust.

## **Leaf Spot**

Still another defoliating disease, Alternaria leaf spot, is also new to the San Joaquin Valley. Nothing is known about the disease except that it appears in early summer, causes large lesions on leaves, and can cause defoliation. Carmel, Nonpareil, Butte, Price, Sonora, Mission, and Peerless are affected. Sonora is somewhat more susceptible than the others. Leaf Spot has been around for several years, and only at a few locations has it caused enough damage to be of concern. But be on the alert! Rovral applied at 5 weeks after petal fall has some efficacy against Alternaria leaf spot, but does not prevent serious defoliation. The limitation of treatment no later than five weeks after petal fall may be partly responsible for the poor control. Ziram and Maneb show slight activity.

## **Leaf Blight**

The leaf blight fungus attacks the base of the leaf petiole and the bud that sits between the leaf and shoot. The leaf dies, turns a light tan color, and remains stuck to the tree. Later these leaves are then covered with the black growth of secondary fungi decomposing the infected leaves. Leaf death is of less importance, however, than the bud death that accompanies it. Leaf blight is more common in Northern California and fortunately we see it seldom here in Madera County. Generally, scab and shot hole programs control leaf blight.

## **Anthracnose**

An extremely damaging fungal disease, Anthracnose (*Colletotrichum gloeosporioides*) was severe in some orchards in Northern California last year. Anthracnose has been in California for many years, but has become more severe recently, attacking leaves and fruit. Leaf lesions have a bleached appearance and can cause the leaves to drop, though defoliation is not usually very pronounced. On fruit, anthracnose causes deep crater-like lesions; the affected area turns a rusty reddish brown, and older fruit often gum profusely. Inside, the nut meat is destroyed. The fungus is reported to invade the wood, and the branches upon which infected fruit reside weaken and die. Thus, in addition to destroying the crop, long term damage and weakening of the tree may occur. Varietal differences in susceptibility are not clear. It appears that good scab control programs appear to provide some control against this disease. Orchards which have a history of anthracnose should be treated during bloom, preferably at pink bud, to help reduce inoculum build-up as much as to protect blossoms. Trees should be protected before every rain, thus repeated applications may be necessary through spring.

## **Fungicide Control Programs**

Generally, a good disease control program is based upon a wise choice of fungicides and good timing and coverage. Growers should assess the diseases present in their orchards and select materials carefully. Not all fungicides are equally effective on all diseases. It is a good idea to use more than one kind of fungicide for a broader spectrum of activity.

Usually two sprays are made for brown rot control. The first is usually done at 5-20 % bloom using a systemic fungicide such. Some of these fungicides may require a contact fungicide to reduce resistance. Resistance to these fungicides can develop over time and repeated use, thus try to rotate the fungicides you use. The second spray should be done at about 80% to full bloom or two weeks after the first spray. This is the most effective brown rot spray. Depending on the weather, a third spray may be necessary if rains persist and two weeks of protection have gone by. Since we cannot predict the weather at bloom time, we must at least take some initial action to protect our crop. Application techniques are also important. Usually ground application is better than air; but care must be taken that both are applied correctly. In general, use properly calibrated and directed nozzles and maintain a slow speed.

Reprint freely with credit to: Brent A. Holtz, Ph.D., Pomology Farm Advisor, University of California Cooperative Extension, Madera, CA.

### **NEW FUNGICIDE EFFICACY TABLES NOW AVAILABLE (Norton)**

The new Fungicide Efficacy and Timing tables for tree & vine crops is available free at [www.uckac.edu/plantpath](http://www.uckac.edu/plantpath) where you can download it and print it out for your use. If you do not have internet access you can get a copy at the Cooperative Extension office for a small charge to cover duplication costs. The latest edition should say "Revised 1 February 2002" on the cover. Earlier editions should be discarded. This publication is to only be used for planning purposes. A current pesticide label should be consulted prior to making any recommendation about pesticides.

### **NEW PUBLICATIONS**

**Integrated Pest Management for Almonds** - Second Edition (#3308) is available for \$32.00. This edition of our best-selling guide for almonds is completely revised and expanded. Covers 120 different pest problems including diseases, insects and mites, nematodes, vertebrate pests, and weeds; including 10 new insect pests and diseases. Available at your local Cooperative Extension office

**The UC Interactive Tutorial for Biological Control of Insects and Mites** – This computer tutorial CD teaches users to identify specific natural enemies of common pests, understand the biology of several predators, parasites, and pathogens and provides instruction on releasing commercially available biological control agents such as insects, mites, and nematodes. It contains 350 beautiful color photographs, more than 20 detailed illustrations, and a comprehensive index. \$30.00 For ordering information go to [anrcatalog.ucdavis.edu](http://anrcatalog.ucdavis.edu) or call 800/994-8849.

### **Changing Strategies Against Peach Powdery Mildew By Roger Duncan**

In 2000, many peach growers had powdery mildew problems worse than they had ever had it. In the fall of 2000, we discovered the powdery mildew fungus was forming overwintering sexual reproductive structures called cleistothecia. This was the first time this phenomenon had ever been seen on peaches in California. This finding was confirmed in fall 2001. The significance of this discovery is two-fold. First, we have always felt the spread of peach powdery mildew was asexual, essentially meaning pieces of the fungus (conidia or spores) break off, are distributed in the wind to other parts of the plant which are then infected if environmental conditions are right. This meant that essentially there was no genetic change from colony to colony. With the discovery of sexual reproduction of the peach mildew fungus (which means genetic recombination is occurring), it is possible that new strains of the pathogen will appear. This also means the possibility of developing resistance to overused fungicides is increased significantly.

The second point to make is that a pre-bloom treatment with sulfur may be beneficial. Growers who have had peach blocks with powdery mildew problems should consider applying sulfur before blossoms open, followed by a good in-season mildew program. Remember, it is now even more critical to rotate between classes of fungicides to prevent development of resistance.

### **Silver Leaf Continued...by Roger Duncan**

Last fall I wrote an article about the emergence of silver leaf disease in our area and how growers should prune trees as early as possible in the fall. This was to prevent silver leaf infection by allowing pruning wounds to "heal" before the rainy season. Many local growers prefer to prune young trees in the spring, with the thought of reducing bacterial canker problems. Some have asked if applying a fungicide like Laredo to fresh pruning wounds might protect against Silver Leaf infection. Although this is recommended in Australia, we have yet to test this locally and there is no such label in California.

### **Pest Hotline**

The Stanislaus County Tree & Vine IPM Hotline will resume operation for the 2002 season on March 4. Information on flight activity and optimal treatment timing for pests including oriental fruit moth, peach twig borer, codling moth, omnivorous leaf roller and OBLR can be accessed 24 hours a day at 525-6841. Information is based on insect traps

monitored by Kathy Kelley and Roger Duncan in Stanislaus County orchards. The tape will be updated Tuesdays each week.

### **Boron in Bloom Sprays (Roger Duncan)**

Boron is very important for proper pollen tube growth and thus fertilization of fruit blossoms. Studies conducted a few years ago demonstrated that post-harvest foliar sprays with 1-2 pounds of a 50% boron material can significantly increase fruit set in almonds that have hull levels of 120 ppm or less. It was also shown that bud swell / pink bud sprays work almost as well. Boron included in full bloom sprays actually showed a reduction in yield compared to unsprayed trees. Boron sprayed in-season (petal fall through harvest) has little effect on tree boron status or fruit set the following year because developing hulls are such strong sinks for boron. If your almond trees are deficient in boron (as most orchards and many vineyards east of the San Joaquin River are), consider applying 5-10 pounds of boron per acre to the soil in a broadcast application. Many growers find that adding boron in their herbicide strip sprays works very nicely.

### **Experimental Rootstocks Available (Norton)**

UC Davis has some experimental rootstocks for peaches that may have improved resistance to ring nematode and bacterial canker disease. If you are interested in testing a few either in a new planting or a replant situation, the trees will be available next winter. The only cost to the grower would be the cost of the trees themselves. If you are interested, I need to hear from you a.s.a.p. so we can tell them what variety to bud. Call me at the office 385-7403 or mobile: 761-2846.

### **Stanislaus County Tree & Vine IPM Breakfast Meetings**

Kathy Kelley and Roger Duncan will resume their IPM update breakfast meetings this season on March 13 and then will continue on the second and fourth Wednesday mornings of each month from March through June from 7:00-8:00. The location will be the same as last year - the Peach Tree Restaurant located at 2535 E. Whitmore in Ceres. There are no fees or reservations required for these meetings. All interested growers and pest control advisors are invited to attend. These meetings feature informal (hopefully interactive) discussions on current pest problems and ongoing research. One and one-half hours of continued education for PCAs and growers are offered at each meeting. If you have suggestions for discussion items, please call Kathy or Roger at 525-6800.

Due to the retirement of Lonnie Hendricks there will be no IPM breakfasts for Merced County this year.

### **CHILLING HOURS**

As of 1 Feb our volunteer weather observer, Stan Fidel recorded 918 hours at or below 45F near Livingston. That compares to 1200 in 2001, 926 in 2000 and 1185 in 1999. For chilling hours from other sites go to [fruitsandnuts.ucdavis.edu](http://fruitsandnuts.ucdavis.edu) and select Pomology Weather Services.